

Applicant : Mathur, et al.
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Attorney's Docket No.: 09010-045US1

AMENDMENT

Please amend the application as follows:

In the claims:

~~Please~~ cancel claim 12.

Please replace claims 1-11 with amended claims 1-11 as follows:

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-- 1. (Twice Amended) An isolated polynucleotide selected from the group consisting of:

(a) a polynucleotide encoding a thermostable phosphatase comprising an amino acid sequence as set forth in SEQ ID NO: 28; and

(b) a polynucleotide which is complementary to the polynucleotide of (a).

2. (Twice Amended) An isolated polynucleotide selected from the group consisting of:

(a) SEQ ID NO: 19; and

(b) SEQ ID NO: 19, where T can also be U;

wherein the polynucleotide of (a) and (b) encode a phosphatase.

sub H17

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3. (Amended) The polynucleotide of claims 1, 2, 13, or 14, wherein the polynucleotide is DNA.

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4. (Amended) The polynucleotide of claims 1, 2, 13, or 14, wherein the polynucleotide is RNA.

63 sub H27

5. (Twice Amended) An isolated polynucleotide encoding a thermostable phosphatase, or an enzymatically active fragment thereof, comprising a polynucleotide having at least 70% identity to a member selected from the group consisting of:

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- 63 sub H27
- (a) a polynucleotide encoding an enzyme having phosphatase activity encoded by the DNA contained in ATCC Deposit No. 97379, wherein said enzyme is obtained from *Ammonifex degenesi* KC4; and
- (b) a polynucleotide complementary to the polynucleotide of (a).
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6. (Amended) A vector comprising the DNA of claim 3.

7. (Amended) A host cell comprising the vector of claim 6.

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8. (Amended) A process for producing a polypeptide comprising: expressing from the host cell of claim 7 a polypeptide encoded by said DNA and isolating the polypeptide.

sub H37

9. (Amended) A process for producing a recombinant cell comprising: transforming or transfecting the cell with the vector of claim 6 such that the cell expresses the polypeptide encoded by the DNA contained in the vector.

sub H47

10. (Twice Amended) A thermostable phosphatase of which at least a portion is encoded by a polynucleotide of claim 14 and wherein the thermostable phosphatase comprises an amino acid sequence which is at least 70% identical to an amino acid sequence as set forth in SEQ ID NO: 28.

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11. (Twice Amended) A phosphatase enzyme of which at least a portion is encoded by a polynucleotide of claim 14 and wherein the phosphatase comprises an amino acid sequence which is at least 70% identical to the amino acid sequence as set forth in SEQ ID NO: 28. --

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Please add claims 13-28.

-- 13. (NEW) An isolated polynucleotide selected from the group consisting of:

(a) a polynucleotide having at least 70% identity to a polynucleotide that encodes the polypeptide sequence of SEQ ID NO:28, or enzymatically active fragments thereof, wherein the polypeptide has phosphatase activity; and

(b) a polynucleotide complementary to (a).

14. (NEW) An isolated polynucleotide selected from the group consisting of:

(a) a polynucleotide that encodes a polypeptide having at least 70% identity to SEQ ID NO:28, or enzymatically active fragments thereof, wherein the polypeptide has phosphatase activity; and

(b) a polynucleotide complementary to (a).

15. (NEW) The isolated polynucleotide of claim 1, wherein the group further consists of a polynucleotide comprising at least 15 contiguous bases of the polynucleotide of (a) or (b) and hybridizes with specificity to a polynucleotide that encodes a polypeptide having activity as a phosphatase under hybridization conditions comprising 0.9M NaCl, 50 mM NaH₂PO₄, and 0.5% SDS.

16. (NEW) The isolated polynucleotide of claim 2, wherein the group further consists of a fragment of (a), (b) or their complements that are at least 15 contiguous bases in length and hybridizes with specificity to a polynucleotide that encodes a phosphatase, or an enzymatically active fragment of the phosphatase.

17. (NEW) The isolated polynucleotide of claim 5, wherein the group further consists of a polynucleotide comprising at least 15 contiguous bases of the polynucleotide of (a) or (b) and hybridizes with specificity to a polynucleotide that encodes a polypeptide that has phosphatase activity.

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18. (NEW) The thermostable phosphatase of claim 10, wherein the phosphatase comprises at least 30 contiguous amino acid residues.

19. (NEW) The phosphatase enzyme of claim 11, wherein the phosphatase comprises at least 30 contiguous amino acid residues.

20. (NEW) The isolated polynucleotide of claim 13, wherein the group further consists of a polypeptide comprising at least 15 contiguous bases of the polynucleotide of (a) or (b) and hybridizes with specificity to a polynucleotide that encodes a polypeptide that has phosphatase activity.

21. (NEW) The isolated polynucleotide of claim 14, wherein the group further consists of a polynucleotide comprising at least 15 contiguous bases of the polynucleotide of (a) or (b) and hybridizes with specificity to a polynucleotide that encodes a polypeptide that has phosphatase activity.

22. (NEW) A polynucleotide probe comprising a nucleic acid sequence consisting of a sequence that hybridizes under stringent conditions to a polynucleotide encoding a polypeptide sequence of SEQ ID NO:28, or a complement thereof.

23. (NEW) A polynucleotide probe comprising a nucleic acid sequence consisting of a sequence that hybridizes to a polynucleotide encoding a polypeptide having at least 90% identity to the sequence of SEQ ID NO:28, or a complement thereof

24. (NEW) The probe of claim 22 or 23, further comprising a sequence of at least 10 bases.

25. (NEW) The probe of claim 22 or 23, further comprising a sequence of at least 15 bases.

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26. (NEW) The probe of claim 22 or 23, further comprising a sequence of at least 30 bases.

27. (NEW) The probe of claim 22 or 23, further comprising a sequence of at least 50 bases.

28. (NEW) The probe of claim 22 or 23, further comprising a sequence of at least 150 bases.

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